

(No Model.)

W. A. BERNARD.
VISE.

No. 454,542.

Patented June 23, 1891.

Fig. 1.

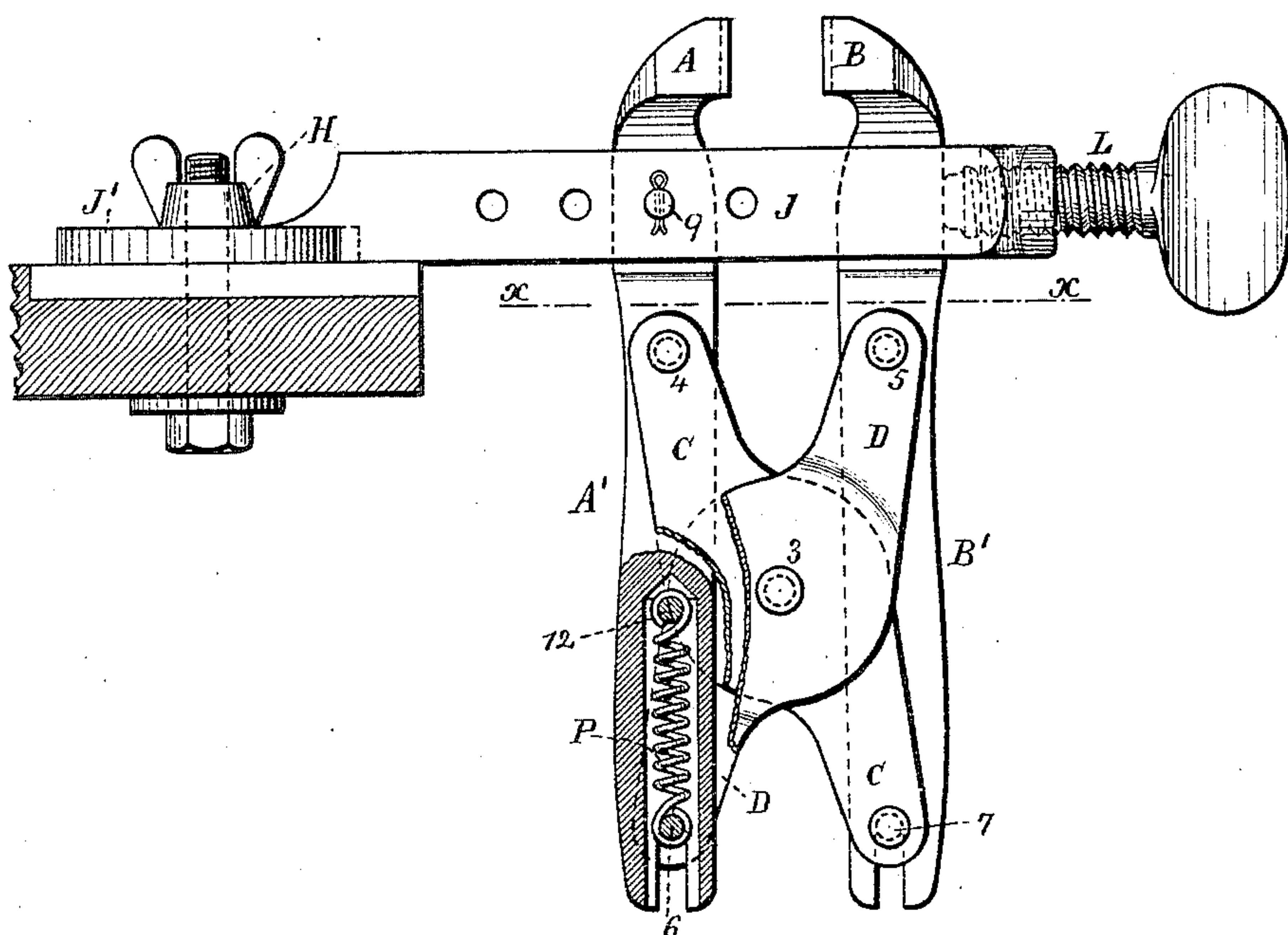


Fig. 2.

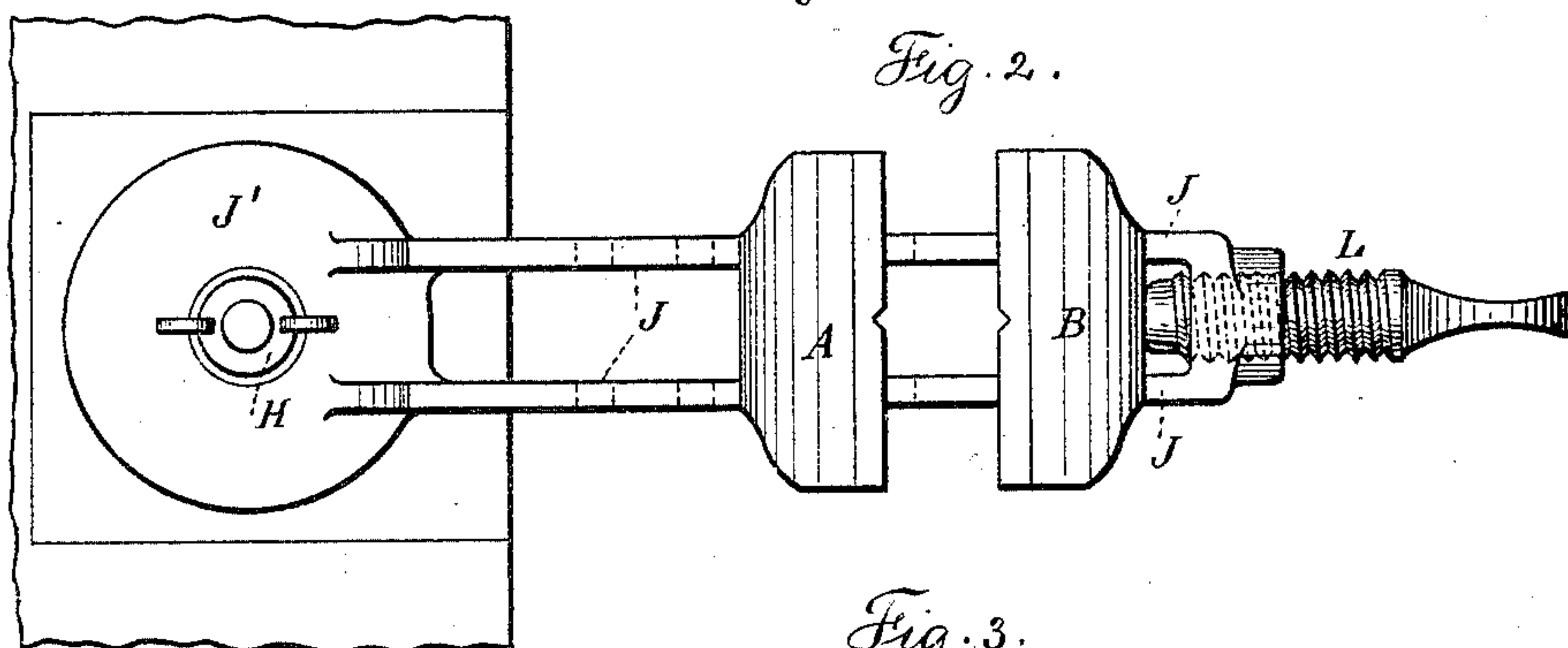
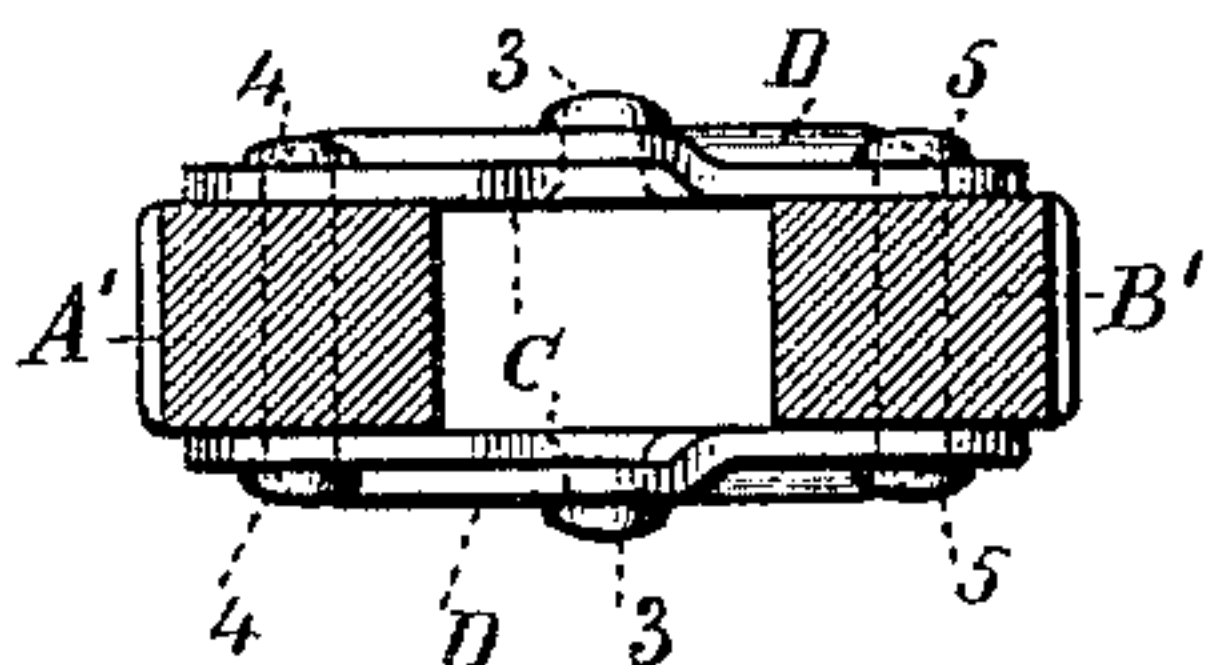


Fig. 3.



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UNITED STATES PATENT OFFICE.

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WISE.

SPECIFICATION forming part of Letters Patent No. 454,542, dated June 23, 1891.

Application filed October 31, 1890. Serial No. 369,954. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. BERNARD, a citizen of the United States, residing at the city and State of New York, have invented an
5 Improvement in Vises, of which the following is a specification.

Before my invention bench-vises had been made with vertical jaw-stocks connected together by cross-bars and opened and closed by
10 a screw. In this character of vise the jaws opened and closed with a parallel movement; but the screw being central, and also the cross-bars, there was no opportunity for passing a
15 rod centrally through between the jaws and their stocks.

My present invention is especially intended for hand-vises; but it is also applicable to bench-vises, and it is made to render the action of the vise uniform and to allow a free
20 open space centrally through the vise, so that such vise can be applied to a rod, wire, or other article of any length, and when in the form of a hand-vise this invention becomes a handle around the article for holding and
25 manipulating the same, and the clamping action can be either by the hand alone or by the action of a screw at the end of a sling, by which a powerful pressure is applied to move the parallel jaws toward each other.

30 In the drawings, Figure 1 is an elevation, partly in section. Fig. 2 is a plan view, and Fig. 3 is a horizontal section at the line *x x*.

The jaws A B are provided with stocks or shanks A' B', which are parallel to each other,
35 or nearly so, and the jaw portions are curved inwardly toward each other, and I make use of two pairs of cross-levers C D, which are pivoted centrally at 3 and at 4 5 to the respective shanks A' B', and there are cross-bolts or rivets 6 7, passing through longitudinal slots in the jaw-shanks and connecting the lower ends of the pairs of cross-levers. Hence these pairs of cross-levers allow the jaws and their shanks to be opened or closed, and they form a reliable connection between the shanks of the
45 jaws, and at the same time there is an open space through between the two pairs of cross-levers, so that a rod or wire can be easily passed centrally through between the jaws of the
50 vise; and in hand-vises the outer edges of the shanks A' B' are curved or rounding, so as to

be easily grasped in the hand, and in cases where the article acted upon does not require to be grasped with considerable force the grasping action of the hand may be sufficient
55 for holding the article between the jaws of the vise; but usually a sling J is made use of in the form of two straps passing one at each side of the jaw-shanks and having a nut at one end which joins the two parts of the sling,
60 and through which nut is a screw L, which may be either a thumb-screw or a lever-screw, according to the size of the vise, and the back end of the sling J is connected with the shank A' by a cross-screw pin or rivet 9. By this
65 means the force of the screw can be used to advantage in clamping an article placed between the jaws of the vise.

By providing more than one hole in the sling J for the cross pin or screw 9 a comparatively short screw L may be made use of, and
70 by moving the pin or screw 9 the vise may be opened more or less and adapted to different sizes of articles, and when the sling J is prolonged it may be attached to the surface of a
75 bench, so as to adapt the present improvement to a bench-vise. In this case it is advantageous to spread the back end of the sling J in the form of a disk or plate J', with a central hole for the clamping-bolt and nut
80 H for firmly connecting the vise to the bench, and also for allowing the vise to be swung around diagonally to the bench or at right angles to the same for the convenience of the article grasped by the vise or the workman.
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One of the jaw-shanks is bored endwise to form a cavity for the reception of a contractile helical spring P, and one end of this spring is connected with the cross-pin 6 and the other end is connected by a cross-pin 12,
90 and the contraction of this spring tends to draw the pin 6 toward the pin 4, and in so doing opens the vise, and this spring is stretched or distended as the vise is closed, and the force exerted on the vise-jaws is nearly uniform, because as the strength of the spring lessens the leverage of the cross-levers becomes greater in moving the jaws and the reverse.
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I claim as my invention—

1. The combination, with the vise-jaws A and B and shanks A' B', of double cross-le-
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vers C D, pivoted at 4 and 5 upon the jaw-shanks, respectively, one pair of levers being at one side of the shanks and the other pair at the other side of the shanks, such shanks being slotted and receiving the cross pins or rivets 6 and 7, that connect the respective pairs of cross-levers, substantially as set forth.

2. The combination, with the vise-jaws A B and shanks A' B', of two pairs of cross-levers, one pair at each side of the jaw-shanks and united thereto by pivots and cross-pins passing through slots in the jaw-shanks, and a sling connected with one of the jaw-shanks and having a screw acting upon the other jaw-shank, substantially as set forth.

3. The combination, with the vise-jaws and shanks, of the cross-levers, one pair at each side of the jaw-shanks pivoted to such shanks and provided with cross-pins and slots in such shanks, and a contractile spring acting upon

the cross-levers to open the jaws of the vise, substantially as set forth.

4. The combination, with the vise-jaws and shanks, of two pairs of cross-levers pivoted together and to the jaw-shanks, and a spring within a cavity in one of the shanks acting upon the levers to open the vise, substantially as set forth.

5. The combination, with the vise-jaws and shanks, of cross-levers pivoted together and to the jaw-shanks, a sling at each side of the shanks and provided with a nut and a screw to act upon one of the jaws, and a connection at the end of the sling for supporting the vise upon a bench, substantially as set forth.

Signed by me this 28th day of October, 1890.

WILLIAM A. BERNARD.

Witnesses:

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